NRL Contract No. NDPR T-4126R

Task Description: Determination of Sea Surface Conditions Using Skylab L-Band and Radscat Passive Microwave Radiometers

MONTHLY PROGRESS REPORT ON EPN 384

Prepared by: James P. Hollinger Date: 23 July 1973

This report covers the time period since 1 May although budget figures are only available through 31 May.

The antenna pattern convolution program is now nearly complete and is in the final stage of debugging. This program convolves the S-193 and S-194 antenna pattern for the relevant orientation and position of Skylab and antenna pointing with a modeled brightness distribution over all space to obtain the apparent antenna temperature. The antenna pattern and models of the sea surface and the atmosphere are entered as subroutines.

The antenna pattern convolution program will be used to investigate various simulated sea surface and atmospheric conditions over a wide range of experimental and environmental variables. It will also be used to evaluate sources of error and to study the effects of the antenna pattern under experimental conditions.

The antenna pattern situation is still unresolved. Many telephone conversations were held during this period regarding the S-193 antenna patterns; primarily with Carl Cook at the University of Kansas, Nick Hatcher and Don Pound at the NASA-MSC and Ray Meier at G.E. I understand that G.E. pattern measurements of the qual unit indicate it to be significantly

different than the flight unit. We expect to receive copies of these patterns from G.E. and will reassess the situation at that time in light of the results from the University of Kansas.

Stan Becker of AIL informs me that they are preparing the S-194 antenna pattern information we requested. Until we receive the necessary antenna pattern information for S-193 and S-194 we will use rough guess simulated patterns. However detailed analysis will have to await the accurate pattern information.

We have received preliminary ground truth information from Dr. Pierson but no other data from Skylab 2 at this time.